LITERATURE.

Professor Proctor's Latest Contribution to the World of Science.

"ROUGH WAYS MADE SMOOTH."

The Sun, the Moon, the Clouds, the Wind and the Human Body.

FROM EARTH TO SKY.

Professor Proctor's latest contribution to the scientific literature of the day is found in a volume called "Rough Ways Made Smooth," published by R. Worthington. In it the author handles a great variety of subjects, none of which have been treated except in their scientific significance, though in familiar and untechnical terms. Professor Proctor wrote his preface and corrected his proof sheets on board the Arizona while on his way to this country in October, so that nothing later than this has left his hands in book form. "The Sun's Corona and His Spots" is the first rough way Professor Proctor makes smooth. He regards the sun-spot period as mysterious, because even if we admit (which he thinks we cannot do) that the sun spots are produced in some way by the action of the planets upon the sun, it would still remain altogether a mystery how this action operated. He says that "when all the known facts respecting the sun spots are carefully considered no theory yet advanced respecting them seems at all satisfactory, while no approach even has been made to an explanation of their periodic increase and diminution in number. This seems to me one of the most interesting problems which astronomers have at present to deal with; nor do I despair of seeing it satisfactorily solved within no very long interval of time. Should the recognition of a sympathy between the corona and the sun spots be satisfactorily established an important step in advance will have been made—possibly even the key to the enigma will be found to have been discovered."

In this chapter he considers, first, whether the evidence we have on this subject is sufficient, and afterward he proceeds to discuss some of the ideas suggested by the relations which have been recognized as existing between the sun spots, the sierra, the colored prominences and the zodiacal light. Even when a method has been devised for observing the gaseous corona, says Professor Proctor, the corona whose light comes either directly or by reflections from solid or liquid matter will still remain undiscernible, save only during total eclipses of the sun. Many years must doubtless pass, then, before the relation of the corona to the prominences and the sun spots shall be fully recognized. But he is convinced that the solution of this problem will be well worth waiting for, even though it should not lead up (as it most probably will) to the solution of the mystery of the periodic changes which affect the surface of the sun.

SUN SPOTS AND COMMERCIAL PANICS.

Professor Proctor devotes an interesting chapter to the peculiar relations between sun spots and commercial panics. We are not only, it would seem, to regard the sun as the ultimate source of all forms of terrestrial energy, existent or potential, but as regulating in a much more special manner the progress of mundane events. It appears that certain meteorological phenomena show a tendency, more or less marked, to run through a ten-year cycle. Thus, from the records of rainfall kept at Oxford, it appears that more rain fell under west and southwest winds when sun spots were largest and most numerous than under south and southeast winds, these last being the more rainy winds, when sun spots were least in size and fewest in number. This is a somewhat recondite relation, and at least proves that earnest search has been made for such cyclic relations as we are considering. But this is not all. When other records were examined the striking circumstance was discovered that elsewhere, as at St. Petersburg, the state of things observed at Oxford was precisely reversed. At some intermediate point between Oxford and St. Petersburg no doubt the rainfall under the winds named was equally distributed throughout the spot period. Moreover, as the conditions thus differ at different places, we may assume that they differ also at different times. Such relations appear, then, to be not only recondite, but complicated. * * * Taking five and a quarter years as the average interval between maximum and minimum sun spot frequency, we should like to find every crisis occurring within a year or so on either side of the minimum, though we should prefer, perhaps, to find the crisis always following the time of fewest sun spots, as this would more directly show the depressing effect of a spotless sun. No crisis ought to occur within a year or so of maximum solar disturbance; for that, it should seem, would be fatal to the suggested theory. Taking the commercial crises in order, and comparing them with the known (or approximately known) epochs of maximum and minimum spot frequency, we obtain the following results (we italicize numbers or results unfavorable to the theory):—The doubtful crisis of 1701 followed by a spot *minimum* by *three years*; the crisis of 1711 preceded a *minimum* by one year; that of 1721 preceded a *minimum* by *two years*; 1731-32 preceded a *minimum* by one year; 1742 preceded a *minimum* by *three years*; 1752 followed a *maximum* by *two years*; 1763 followed a *maximum* by *a year and a half*; 1772-73 came *midway* between a *maximum* and a *minimum*; 1783 preceded a *minimum* by *nearly two years*; 1793 came *nearly midway* between a *maximum* and a *minimum*; 1804-5 coincided with a *maximum*; 1815 preceded a *maximum* by *two years*; 1825 followed a *minimum* by *two years*; 1836-39 *included* the year 1837 of *maximum* solar activity (that year being the time also when a commercial crisis occurred in the United States); 1847 preceded a *maximum* by a *year and a half*; 1866 preceded a *minimum* by a year; and 1878 followed a *minimum* by a year. Four favorable cases out of seventeen can hardly be considered convincing. If we include cases lying within two years of a *minimum*, the favorable cases mount up to seven, leaving ten unfavorable ones. It must be remembered, too, that a single decidedly unfavorable case (as 1804, 1815, 1837) does more to disprove such a theory than twenty favorable cases would do toward establishing it. The American panic of 1873, by the way, which occurred when spots were very numerous, decidedly impairs the evidence derived from the crises of 1866 and 1878.

NEW PLANETS NEAR THE SUN.

Speaking of new planets near the sun, Professor Proctor says:—

Within the orbit of Mercury there are several small planets, of which certainly two, and probably three, were seen during the eclipse of July 29, 1878. All these bodies must be beyond the range of any except the most powerful telescopes, whether sought for as bright bodies outside the sun (not eclipsed) or as dark bodies in transit across the sun's face. The search for such bodies in transit would in fact be hopeless with any telescope which would not easily separate double stars one second of arc apart. It is with large telescopes, then, and under favorable conditions of atmosphere, locality, &c., that the search for intra-Mercurial planets in transit must in future be conducted. As the observed disturbance of Mercury's perihelion, and the absence of any corresponding disturbance of his nodes (the points where he crosses the plane of the earth's motion) show that the disturbing bodies must form a ring or disk whose central plane must nearly coincide with the plane of Mercury's path, the most favorable time for seeing these bodies in transit would be the first fortnights in May and November, for the earth crosses the plane of Mercury's orbit on or about May 8 and November 10. I believe that a search carried out in April, May and June, and in October, November and December, with the express object of discovering very small planets in transit, could not fail to be quickly rewarded, unless the observations made by Watson and Swift are to be wholly rejected.

In a footnote Professor Proctor says:—

Since this was written, Professor Swift has expressed the opinion that his planet cannot possibly have been the one seen near Theta Cancri by Professor Watson, who it seems saw Theta in the centre of the large field of view, and must therefore have seen Swift's planet had that object been placed either as shown in figure 2 or figure 3. Hence Professor Swift considers that both the stars he himself saw were planets, and that he did not see Theta at all. The reasoning in the last five paragraphs of the above essay would not be in the least affected if we adopted Professor Swift's conclusion, that four and not three intra-Mercurial planets were detected during the eclipse of July last. Yet later Professor Peters, of Clinton, has indicated reasons for believing that while Watson simply mistook for planets the two fixed stars, Theta and Zeta Cancri, Professor Swift saw no planets at all. This interpretation would account fully, though not very satisfactorily, for all that is mysterious in the two narratives.

BRITISH TRANSIT EXPEDITIONS.

* * * It is to be remembered, however, in estimating the probable value of the result which has been deduced from the British observations, that as yet only a portion of these observations has been effectively dealt with. The British observations of the beginning of transit at northern and southern stations give, when combined together, a value of the sun's distance. The British observations of the end of transit at other northern and southern stations give also, when combined together, a value of the sun's distance. And both sets combined give of course a mean value of the sun's distance, more likely on the whole to be correct than either value taken separately. But the British observations of the duration of transit as observed from southern stations do not of themselves give any means of determining the sun's distance. They must be combined with observations of the duration of transit as observed from northern stations, and no British party was stationed where such observations could be obtained. The value, then, of these particular British southern observations can only be educed when comparison is made between them and the northern observations by American, German and Russian astronomers.

We must not, then, be disheartened if the results of the British operations alone should not seem to be altogether satisfactory. For it may still happen that that portion of the British operations which only has value when combined with the work of other countries may be found to possess extreme value. We had good reason for doubting beforehand whether results of any great value could be obtained by Delisle's method. It was only because Halley's was supposed to fail totally that the government astronomers ever thought of employing that method, which the experience of former transits had taught us to regard as of very little value. * * * I am well assured that neither Continental nor American astronomers will accept the new estimate of the sun's distance, unless—which I venture to predict will not be the case—the entire series of transit observations should seem to point to the same value as the most probable mean. Even then most astronomers will, I believe, think rather that transits of Venus do not afford such satisfactory means of determining the sun's distance as had been supposed.

A NEW CRATER IN THE MOON.

The moon's surface has been so long and so carefully studied that it is almost impossible to understand how such a crater as now certainly exists in the Sea of Vapors near Hyginus could have escaped detection. Craters of the kind exist, indeed, in hundreds on the moon's surface. But many astronomers have given years of their life to the study of such objects; and the centre of the moon's disk, for reasons which astronomers will understand, has been studied with exceptional care. It seems so unlikely that a deep crater three miles in diameter could escape recognition, that some astronomers have not hesitated to regard the newly detected crater as certainly a new formation. For my own part, though it seems almost impossible to explain how such a crater could have remained so long unnoticed, I can regard the evidence of change as amounting only to extreme probability so far as it depends on the result of past telescopic scrutiny of the moon.

COLD WINTERS.

The chapter devoted to cold winters will be found of peculiar interest at the present time:—

During the cold weather of last December (1878) we heard much about old-fashioned winters. It was generally assumed that some thirty or forty years ago the winters were colder than they now are. Some began to speculate on the probability that we may be about to have a cycle of cold winters, continuing perhaps for thirty or forty years, as the cycle of mild winters is commonly supposed to have done. If any doubts were expressed as to the greater severity of winter weather thirty or forty years ago evidence was forthcoming to show that at that time our smaller rivers were commonly frozen over during the winter, and the larger rivers always encumbered with masses of ice and not unfrequently frozen from source to estuary. Skating was spoken of as a half-forgotten pastime in these days as compared with what it was when the seniors of our time were lads. Nor were dismal stories wanting of villages snowed up for months, of men and women who had been lost amid snowdrifts and of other troubles such as we now associate rather with Siberian than with British winters.

Turning over the pages of the *Penny Magazine* for the year 1837 Professor Proctor came across a passage which shows that "these ideas about winter weather forty years ago were entertained forty years ago about winter weather eighty or ninety years ago."

* * * The study of meteorological records gives no valid support to the theory of change. Nor is it difficult to understand how the idea that there has been a change has arisen from the changed conditions under which men in middle life, as compared with children, observe or feel the effects of milder weather. A child gives no heed to mild winters. They pass, like ordinary spring or autumn days, unnoted and unremembered. But a bitter winter, or even a spell of bitter weather such as is felt almost every year, is remembered. Even though it lasts but for a short time it produces as much effect on the childish imagination as a long and bitter winter produces on the minds of grown folk. Looking back at the days of childhood the middle aged man or woman recalls what seems like a series of bitter winters, because recalling many occasions when, during what seemed a long time, the snow lay deep, the waters were frozen and the outdoor air was shrewd and biting.

Before considering some of the remarkable winters which during the last century have been experienced in Great Britain and in Europe generally I would discuss briefly the evidence on which I base the belief that the winter weather of Europe, and of Great Britain especially, has undergone no noteworthy change during the last century.

Professor Proctor concludes this chapter by saying that—

On the whole the winter of 1878-79 must be regarded as the coldest we have had during at least the last score of years, and probably during twice that time. It was not characterized by exceptionally severe short periods of intense cold, like those which occurred during the winters of 1854-55, 1855-56 and 1860-61; but it has been surpassed by few winters during the last two centuries for constant low temperature and long-continued moderate frost. During the last ninety years there have been only four winters matching that of 1878-79 in these respects.

OXFORD AND CAMBRIDGE ROWING.

The next chapter is on an entirely different subject from any of the foregoing, and treats of the points of difference between Oxford and Cambridge rowing. Professor Proctor is an expert oarsman, and understands his subject. He says:—

The records of the last eighteen boat races between Cambridge and Oxford indicate clearly enough the existence of a difference of style in the rowing of the two universities, a circumstance quite as plainly suggested by the five successive victories of Cambridge, in the years 1870-74, as by the nine successive victories of Oxford which preceded them. For it is, or should be, known that the victories of Cambridge only began when Morrison, one of the finest Oxford oarsmen, had taught the Cambridge men the Oxford style so far as it could be imparted to rowers accustomed, for the most part, in intercollegiate struggles, to a different system. With regard to the long succession of Oxford victories which began in 1861, and which, be it noticed, followed on Cambridge successes obtained when the light blue stroke rowed in the Oxford style, I may remark that, viewing the matter as a question of probabilities, it may safely be said that the nine successive victories of Oxford could not reasonably be regarded as accidental. The loss of three or four successive races would not have sufficed to show that there was any assignable difference in the conditions under which the rival universities encountered each other on the Thames. In cases where the chance of one or other of two events happening is exactly equal there will repeatedly be observed recurrences of this sort. But when the same event recurs so often as nine successive times it is justifiable to infer that the chances are not precisely—or perhaps even nearly—equal.

* * * * * * *

I was myself trained to row the Cambridge style, and when I became captain of a boat club I was careful to inculcate this style on my crew, and on other crews which came more or less directly under my supervision. But I am convinced that the peculiarity so carefully enjoined in past time by the Cambridge club captains, and still retained, is altogether erroneous for boats of the modern build. I first became aware that the Cambridge style is not the waterman's—and, therefore, presumably not the most effective—through practising in a racing four with three of our most noted Thames watermen—the two Mackinnys and Chitty, of Richmond. They were preparing for the Thames National Regatta, though not as a set crew. Accordingly the coxswain would frequently call upon us for a good lifting spurt of a quarter of a mile or so. During these spurts the coxswain was continually telling me that I was not keeping stroke, and I was sensible myself that something was going wrong. One who has taken part in boat races very soon detects any irregularity in the rowing—by which I do not, of course, refer to so gross a defect as not keeping time. All the men of a crew may be keeping most perfect time, and may even present the appearance of keeping stroke together, and yet may not be feeling their work simultaneously. I was aware that something was going wrong, but I found it impossible, without abandoning the style of rowing in which I had been so carefully trained, to keep stroke with the rest of the crew. It seemed to me that they were doubling over their work, because while I was still swaying backward they had reached the limit of their swing. Then they did not seem to me to feather with that lightning flash which the Cambridge style enjoins. Altogether, I left them, after three or four long pulls, with the impression that, though they might be very effective watermen, they had but a poor style.

Soon after, however, I had occasion to watch Oxford oarsmen at their work, and I found that they row in a style which, without being actually identical with that of the London waterman, resembles it in all essential respects. The moment the oar catches the water the body is thrown back as in the Cambridge style, but the arms, instead of being kept straight, immediately begin to do their share of the work. The result is that when the body is upright the arms are already bent, and the stroke is finished when the body is very little beyond the perpendicular position.

Now let us compare the two strokes theoretically. In each stroke the body does a share of the work, and in the Cambridge stroke the body even seems to do more work than in the Oxford stroke, since it is swayed further back. In each stroke, again, the arms do a share of the work, but in the Oxford stroke the work of the arms is distributed equally as a help to that of the body, whereas in the Cambridge stroke the work of the arms is all thrown upon the finish of the stroke. At first sight it seems to matter very little in what order the work is done, so long as the same amount of work is done in the same space of time.

GREAT STORMS.

In a chapter devoted to great storms Professor Proctor says:—

If there are in reality any regularly recurring periods in weather phenomena we can only hope to recognize them by the careful examination of meteorological records. It appears to us that those already made have not been sufficiently examined, and their careful analysis by competent persons would be more likely to afford useful results than the same amount of labor devoted to the accumulation of fresh records. Of course, if any satisfactory results are to be obtained, meteorological observations must be continued steadily. But it certainly does seem as though some few among the persons who have meteorological matters under their charge might devote their attention to the work of analyzing the millions of observations already collected. Even if it is impossible, as I am disposed for my own part to fear, to produce any system for predicting weather more than a few hours or a day or two in advance, yet this at least might be done for many regions of the earth, which at present have no warning, even for an hour, of the approach of the most desolating hurricanes. Telegraphic communication, especially as we may hope to see it developed in the coming years, might be employed much more extensively than at present. Thus our own country, which warns countries to the east of coming storms, but receives no warnings, might receive useful intimation from the United States and the West Indies (remote though they are) of the advance of great cyclonic disturbances upon us from the neighborhood of the West Indies, Florida, &c. The further progress of great southwesterly disturbances toward our shores might be learned also from ships which, sailing toward the United States, have encountered rough weather when two or three days' sail from their destination. Ships making for Halifax or St. Johns might afford even later intelligence. It is probable that in nearly every case, and certain that in many cases, cyclonic disturbances which have rounded the West Indian part of the great storm-[illegible] and travelled along the shores of the United States beyond Hatteras (generally overlapping the land) pursue their course across the Atlantic, though with gradually diminishing force, until they reach Europe. Probably a law would be found to connect their motions, on the western part of their track, and the direction along which they would strike the shores of Europe. Storms which, after rounding the West Indies, pass toward the northeast, without closely approaching the United States, may usually reach the shores of Spain or the Bay of Biscay, while those which overlap the southeastern States of America may pass across the Atlantic on a more northerly track and make for the British Isles or pass even north of Scotland to the shores of Norway. As it is probable that very few really fierce hurricanes reach us from the southwest which have not first been felt on the western side of the Atlantic, it would be worth while to analyze very carefully all that can be learned respecting the course of such storms. And certainly the expense of telegraphic communication from the other side of the Atlantic would not be worth considering in comparison with the advantage derived from early intimation of the approach of great hurricanes toward the shores of Europe. In other regions, and especially in the tropics, telegraphic communication might be much more readily and effectively employed in announcing the approach of hurricanes.

STORM PREDICTIONS.

In speaking of recent storm predictions Professor Proctor says:—

Although doubt has been thrown by some on the connection between the currents of the North Atlantic and the weather of the British Isles and Western Europe generally, it appears to us that the opinion expressed by Sabin many years since is sound, and that the so-called Gulf Stream does in a most marked manner affect our weather. The most striking evidence of this is to be found in the success of the storm predictions telegraphed to this country from time to time by the NEW YORK HERALD. If the warmer air over the great surface current from North America to Western Europe did not afford a path along which atmospheric disturbances can be propagated to great distances without any noteworthy divergence, these predictions would certainly not have been fulfilled in so large a percentage of cases. These predictions, be it remembered, point much further in advance than any which have ever been based on European observations, at least with fair measure of success—sure proof, if any were needed, that in the main our weather depends on the Atlantic. I believe that not only wind storms but temperature and rainfall will in the future, and perhaps before long, be predicted, for certain seasons at any rate, from the far West. It is true that the regular service of telegrams formerly received from Newfoundland proved of little value. But, as the Director of the Meteorological Office pointed out several months ago, what we really want is that a thoroughly competent meteorologist on that side should have twin stations connected telegraphically, to ascertain the height and rate of motion of the upper clouds; their aspect would indicate the temperature of the atmospheric strata to which they belonged, and then we should know what changes to expect from approaching cold or warm currents in the upper air. At a single station neither the height nor the rate of motion of clouds can be determined; but from two stations a mile or so apart the distance, height and motion of any cloud could be very readily determined. If photography, indeed, were employed, such instruments being used that the height and bearing of every point in the sky picture would be known, records of great value could be obtained not merely for weather prediction, but for the study of the as yet unknown movements of those regions of the air in which cirrus clouds are formed.

A CORRECTED CORRECTION VINDICATED.

TO THE EDITOR OF THE HERALD:—

Your correction of mine seems, at a first view, overwhelming. You had stated that Professor Smyth, Astronomer Royal for Scotland, predicted a cold winter for 1878-79, to which I had objected that his actual prediction related to the winter of 1877-78, and now you are able to quote the Professor's *ipsissima verba* in 1872, "We may perhaps be justified in concluding that the minimum temperature of the present cold wave was reached in 1871.1, and that the next similar cold wave will occur in 1878.8"—that is, as you say, in October, 1878. In the face of this evidence it might seem hopeless to reiterate my statement, and still more hopeless to undertake to show that the evidence you quote confirms the general objections I have raised against the method adopted by the advocates of the sun spot system of weather prediction. But it is, in fact, simply because their method is so unsatisfactory that you have been, very naturally, misled. Although the prediction you quote was in reality a correction on an earlier prediction, as the opening words of the passage partly indicate—("Depending, therefore, chiefly on our later observed eleven-year periods," &c.)—you would hardly have imagined that only five years later (the temperatures in the interval having unkindly refused to behave as Professor Smyth's anticipations had led him to expect) the prediction was again modified. Late in 1877, near enough in all conscience to the predicted cold wave to make prediction safe if the sun spot method were indeed trustworthy, the forecast assumed the following form (see *Nature* for October 4, 1877, p. 475):—

Having recently computed the remaining observations of our earth thermometers here, and prepared a new projection of all the observations from their beginning in 1837 to their calamitous close last year, results generally confirmatory of those arrived at in 1870 have been obtained, but with more pointed and immediate bearing on the weather now before us. The chief features undoubtedly deducible for the past thirty-nine years, after eliminating the more seasonal effects of ordinary summer and winter are:—

1. Between 1837 and 1876 three great heat waves, from without, struck this part of the earth—viz., the first in 1846.5, the second in 1858.0, and the third in 1868.7, and unless some very complete alteration in the weather is to take place the next such visitation may be looked for in 1879.5, within limits of half a year each way.

2. The next feature in magnitude and certainty is that the periods of minimum temperature or cold are not either in, or anywhere near, the middle time between the crests of those three chronologically identified heat waves, but are comparatively close up to them on either side at a distance of about a year and a half, so that the next such cold wave is due at the end of the present year.

This is perhaps not an agreeable prospect, especially if political agitators are at this time moving among the colliers, striving to persuade them to decrease the output of coal at every pit's mouth. Being therefore quite willing, for the general good, to suppose myself mistaken, I beg to send you a first impression of plate No. 17 of the forthcoming volume of observations of this Royal Observatory, and shall be very happy if you can bring out from the measures recorded there any more comfortable view for the public at large. PIAZZI SMYTH,
Astronomer Royal for Scotland.

ROYAL OBSERVATORY, EDINBURGH, Sept. 27.

It will be observed that there are here two very definite predictions—viz., first, that the winter of 1877-78 in Great Britain would be exceptionally cold; second, that 1879.5 (that is the middle of the year 1879) would be, within half a year either way, the time when the heat wave would be felt. How far these predictions were from fulfilment will be seen when we note that the winter of 1877-78 in Great Britain was exceptionally warm and that in the middle of 1879 Great Britain was passing through the colder part of that great cold wave which began to be felt in November, 1878, and is still in progress. So cold was the summer of 1879 that when I left England, on October 18, the harvest was not yet altogether gathered in.

I must point out that on the general question of sun spot influences I have said nothing which does not accord with the passage quoted in your editorial from the *Annual Science Record*. I fully believe that "the solar spots and temperatures change in parallel cycles and affect every feature in terrestrial meteorology." What I deny is that the weather of particular regions (as regards even its broadest features, such as average temperature, rainfall and so forth), can be connected with solar spot cycles. What has hitherto been done has been to examine the records of a great number of regions for a number of weather phenomena, to leave unnoticed all the cases (they are hundreds) in which no cyclic change corresponding with the sun spot cycle can be recognized or imagined, and carefully to collect those cases (they may be counted perhaps by tens) where some such cyclic change seems to be recognizable. These, separated in this way from the discordant cases, seem to present very strong evidence in favor of the sun spot theory of weather, and they have been used, I am sorry to say, in England as arguments in favor of certain schemes not wholly untainted with jobbery. The inexperienced part of the general public fail to see that by a similar arrangement it might be demonstrated that the weather can be predicted by the cards. If I take the fifty-two cards to correspond to the fifty-two weeks of a given past year and shuffle the pack in some special manner I shall not find as I deal the cards in order that every cold week is represented by a card of a black suit and every warm week by a card of the red suit. But if (joining perhaps a number of friends with me in the work) I repeat the test a great number of times I must at length meet with a case where there is tolerably close agreement of the sort indicated. Now, if I were to repeat this process for every year since 1800, and were then to announce—as I could with perfect truth—that a pack of cards shuffled under particular conditions had given for the year 1800 invariably black suits for the cold weeks and red suits for the warm ones, that another shuffling for 1801 had given a similar result, and so on up to the present year, 1879, I should convince many that I could predict in a similar way the weather of successive weeks in 1880. Only the keener sort might ask unkindly how often I had shuffled the cards before I got a satisfactory result for each year, and so soon as this was known no one of any sense would rely on my predictions for 1880. I ask, in like manner, how many cases the sun spot men have examined and rejected for each one which seems, or can be made to seem, to support their views. If they were to answer this question truly we should not hear much more of definite weather predictions for special regions of the earth.

But is it not obvious that the general effects which we may well believe that the sun spots do produce must best be recognized in the weather of the earth as a whole, next in the weather of continents, less in countries and least of all in small regions like those in which the believers in sun spot predictions alone pretend to recognize such effects, though they only indicate certain special effects—wind changes for one place, rainfall changes in another, heat and cold in another? When we see Europe as of late and now exposed to a cold wave, and America to a heat wave, each wave lasting for months, we may most confidently deny that the effects of sun spot changes can be defined and measured. Add that even in England alone great cold spells have occurred in every part of the sun spot cycle, with spots at the maximum, at the minimum, on the increase, and on the wane. Yours truly,

RICHARD A. PROCTOR.

PREPARING FOR PARNELL.

IRISHMEN OF ALL PARTIES UNITE TO WELCOME THE ENVOY FROM ERIN.

The preparations for the reception of Mr. Charles Stewart Parnell, M. P., formally inaugurated at the meeting at the Fifth Avenue Hotel on Wednesday evening last, are being vigorously pushed forward, and prominent members of the Executive Committee express great confidence in the success of the movement in this city. The sub-committee appointed to procure a suitable place of meeting and summon the committee were at work early yesterday afternoon, and after some consultation with sympathizers decided on calling a full meeting of the committee for this evening at the Fifth Avenue Hotel. A circular notifying the members of the fact and requesting prompt attendance was printed and mailed last evening, and several prominent Irish citizens were waited upon and requested to take an active part in the movement to give the Irish popular leader a welcome befitting the position he holds in Ireland. The action of the meeting on Wednesday night in confining itself to the work of securing for Mr. Parnell a hearing from the people of New York, so that the aims, objects and plan of working of the Irish Land League may be fully set forth, seems to meet with general approval, and the committee expect that many prominent citizens will be thus induced to co-operate who would otherwise hold aloof. "We are composed of all parties, sections and religions among the Irish people here," said a member of the committee, "and we intend to avoid committing ourselves to any particular theories of land reform until we hear Mr. Parnell's statement. He is sent out here to lay the case of the Irish farmers, which many regard as the case of Ireland, before us. Nationalists, repealers, home rulers—Catholic and Protestant—and Irish-Americans who take no part in Irish politics cordially join in securing him an impartial hearing, and for the time being lay aside their differences of opinion for the good of the land they have sprung from. That done, it will then be for the people of the Irish race here and those who sympathize with Ireland to take whatever action may seem best to them, and we are confident that the present temporary union so auspiciously begun Wednesday evening must be productive of lasting good to our people."

It is expected that at the meeting this evening a strong appeal for sympathy and support will be adopted and circulated among Irish business and professional men, and that sub-committees will be appointed to wait upon such leading Irish citizens as are known to sympathize with the movement to personally urge them to join the committee. The general opinion is that the Academy of Music will be secured for some evening shortly after Mr. Parnell's arrival, and those who claim to know the Irish people here seem to have no doubt of their ability to fill it to its utmost capacity on the occasion. The organization of the committee effected on Wednesday evening was but temporary, and permanent officers will be elected this evening.

RELIEF FOR IRISH DISTRESS.

Mr. Robert Johnson, of the Fermanagh Relief Committee, informed a HERALD reporter yesterday that a number of natives of county Fermanagh established in business in this city had been waited upon during the past few days for the purpose of securing their co-operation in the relief movement, and that a large number had put down their names for subscriptions. A complete list of subscribers will be made out by to-morrow. It is the intention of the committee to apply the money to the purpose of enabling struggling people in that county, whose means of living, have been destroyed by the continued rains, to come to this country and settle down on the land in the West. If any balance should be left in the hands of the committee after performing this work it will be devoted to the relief of the starving people in Fermanagh.

AID FROM NEWARK.

A preliminary meeting of Irish citizens of Newark was held at the Board of Trade rooms there last evening for the purpose of raising funds to relieve the suffering people of Ireland. P. T. Quinn presided. Mr. Reilly acted as secretary. A committee of five was appointed to report a plan at an adjourned meeting, to be held to-morrow evening.

DUSKY DEPREDATORS.

A VISIT TO A BAND OF CHICKEN THIEVES IN A NEW JERSEY JAIL.

A reporter of the HERALD made a visit yesterday to the six negroes who are languishing in the Monmouth County Jail at Freehold, N. J., for stealing grain and chickens. The prisoners are inoffensive looking men, and they seem neither expert nor hardened desperadoes. The despatches in the HERALD have told the story of the affair as it came from the Court. The reporter found the inhabitants much exercised over the case. He interviewed most of the prisoners and found that the magnitude and character of the so-called "banditti" depredations had been considerably exaggerated. A young negro named Carney, who had farmed in Illinois five years, had served in the war and seen Grant at Appomattox, and been head waiter in a Long Branch hotel, turned scavenger because he could make $8 a day. He bought a team of horses and borrowed a wagon; but failing to make a certain payment on the horses he joined Jack Harris, who had been boarding in his family, and agreed to "go out nights" and steal grain and chickens. They and their assistants were out two nights and had taken about thirty bushels of wheat and rye, with half a dozen fowl, when they were arrested. One or two had previously stolen some corn from a field to feed their horses and a few armfuls of hay, but they had only the expertness of ordinary chicken thieves and were caught at the beginning of their new career. As other petty thefts have been frequent in the county, warrants are out charging these men with most of these crimes. The real thieves, according to their own confessions, are Sam Carney and Jack Harris. The others were teamsters and they say they did not know what was going to be done until the wagon reached the barns where the grain was stored. The culprits are in a luxurious brick jail, which is well ventilated and fully as comfortable as some of the hotels in the place. Vines run over the windows, pictures adorn the walls of the cells; the prisoners are allowed to run loose together; they neither fight nor use bad language; and yesterday, when the Sheriff entered, they flocked round him as if they were going to recite a Sunday school lesson to their favorite teacher. Half an hour later they received a delegation of white visitors—some thirty or forty—from the lower part of the county, among whom were ladies and mothers with babes in arms and small boys trotting by their parental sides. They were allowed to roam around inside of the jail, while an attendant kept guard at the door. As the reporter left a colored friend went for a fresh supply of tobacco for the negroes, and said he would be back "soon."

"HOSPITAL SUNDAY."

The Movement to Secure Organized Aid for the City's Infirmaries.

UNSECTARIAN CHARITY.

How and Where the Sick and Destitute Are Cared For.

In the autumn of 1874 the Board of Managers of St. Luke's Hospital issued an appeal to the Protestant Episcopal churches in this city, asking for a collection in behalf of their work, to be made on the last Sunday of that year, and requesting that thereafter annually similar collections should be made on the same Sabbath, which day should be known among them as Hospital Sunday. Bishop Potter very heartily indorsed this appeal of the managers, and from that time to the present this collection has been taken up in the Episcopal churches. Since 1877, however, the benefits of the collection have been shared with St. Mary's Free Hospital for Children. Each year a large number of congregations have united in the observance of the appointed day, which is now generally recognized by the clergy as a fitting occasion to bring the duty of providing for the sick and needy before the churches. The religious and secular press has shown great interest in this matter, and this, together with the success which has attended a similar general hospital Sunday movement in Liverpool, London and Manchester, led the Rev. Dr. Baker, of St. Luke's Hospital, to inquire into the foundation and history of the hospitals of the city with a view to unite them as this movement now proposes.

THE FIRST INFIRMARIES.

Previous to the year 1849 the care of the sick poor of New York was left to Bellevue Hospital, which is a municipal charity, and to the New York Hospital, a private institution founded in 1770. In 1846 Dr. Muhlenberg, the founder of St. Luke's Hospital, being then rector of the Church of the Holy Communion, made an appeal to that congregation on St. Luke's Day in behalf of a denominational hospital. The appeal was afterward repeated in other churches, and the outcome was a hospital, first in Hudson street in 1850, and afterward the magnificent institution which the venerable founder had the satisfaction of seeing reared under his own supervision and care on one of the most desirable sites on Fifth avenue. About the same time the Roman Catholics started a hospital movement, and in 1849 founded St. Vincent's, a year before St. Luke's was established. The Hebrews took up the same idea, and in 1852 founded Mount Sinai Hospital. They were followed by the Catholics adding another, St. Francis', in 1865, and by the Presbyterians in 1868 founding their hospital. The growth of the city in twenty years, and the success of the hospital movement, led the Episcopalians in 1870 to build their St. Mary's Free Hospital for Children and the Roman Catholics to add their St. Elizabeth's Hospital the same year. The seven hospitals named—three Catholic, two Protestant Episcopal, one Presbyterian and one Hebrew—are what may be called religious hospitals and have capacity for treating 825 patients at once. While those institutions have been growing up other hospitals also have been founded by the liberality of private individuals, as, for instance, the Roosevelt Hospital, founded in 1864; some have been established upon nationality, as, for example, the German, in 1857; some for scientific reasons, as the Hahnemann, in 1875, and some for the treatment of special diseases, as the Woman's Hospital, founded in 1857; the New York Medical College and Hospital for Women, founded in 1863; the Manhattan Eye and Ear Hospital, established in 1869; the Metropolitan Throat Hospital, 1874; the New York Ophthalmic Hospital, 1852, and the New York Orthopedic Hospital, 1868. The Seamen's Retreat Hospital, on Staten Island, was founded in 1831, and a new hospital has been built within a few years at the Sailors' Snug Harbor, Staten Island. These eleven institutions have accommodations for 700 patients. The city has enlarged its accommodations by building the Charity Hospital on Blackwell's Island and another on Ward's Island. The New York Hospital has also enlarged its sphere of usefulness by opening on Chambers street a hospital for "accident" patients. There is, therefore, hospital accommodation in this city for about one thousand eight hundred patients at any one time, exclusive of that which the city provides in her own institutions. Various homes and infirmaries have also arisen, which render to the sick and unfortunate similar service to that furnished in the hospitals, such, for instance, as the Home for Incurables and the House of Rest for Consumptives.

EFFORTS TO SECURE SYSTEMATIC AID.

Of the seven religious hospitals named above, it is an interesting fact that while the managements have conducted their business in their own way, they have shown the broadest charity in the reception of patients, cheerfully treating those of every nationality and form of faith. In view of the fact that only the Presbyterians and Episcopalians have had any fixed day for taking up collections for their hospitals, the former Thanksgiving Day and the latter the last Sunday of the year, the managers of St. Luke's Hospital sent to the Hospital Committee a plan suggested by Dr. Baker, wherein each pastor or contributing congregation was to be left free to send contributions to such hospitals as they might elect. This committee, constituted after the pattern of the London Hospital Committee, is composed of such men as the Mayor, Postmaster James, the Rev. Drs. Morgan Dix, T. M. Peters, George H. Houghton, Thomas Armitage, Talbot W. Chambers, and Messrs. James M. Brown, C. Vanderbilt, Willy Wallach, Henry E. Pellew, Judge Palmer, George McC. Miller, chairman; Rev. George S. Baker, secretary, and others. From this committee an executive committee of five was chosen, as follows:—Mr. George M. Miller, Dr. Baker, St. Luke's Hospital; Mr. George Jones, of the *Times*; Mr. Walter Edwards, Jr., and Mr. John S. Bussing. The Hospital Committee of St. Luke's issued invitations to prominent clergymen and laymen of the Protestant Episcopal Church to meet them in conference on the 16th of December, 1878, when the subject was fully discussed and the meeting resolved to establish a hospital day for the purposes indicated when contributions could be received for all the private hospitals in the city. And to make this resolve a verity the meeting appointed the aforesaid executive committee with power to call another general conference of the different hospital associations of the city. This conference was held in St. Luke's Hospital the first week in January of this year and was participated in by official representatives of thirteen of the city hospitals, a considerable number of representative ministers and other invited guests. The discussion was general and comprehensive, and the necessity for reaching the large number of business men of New York whose homes are outside of the city limits and who would not, therefore, have the privilege of contributing to this cause in a church collection was recognized, and it was decided to add a secular day to the Sabbath for this purpose. Hence both the last Saturday and the last Sunday in the year are designated as hospital days. This year they fall on the 27th and 28th inst.

HOSPITALS INTERESTED IN THE PLAN.

The following named hospitals are now interested in and pledged to this arrangement:—St. Luke's, St. Mary's for Children, Presbyterian, Mt. Sinai, German, New York, Hahnemann, Woman's, Orthopedic, Manhattan, Eye and Ear, New York Ophthalmic, New York Eye and Ear Infirmary, House of Rest for Consumptives, Institution for the Relief of Ruptured and Crippled, and the Home for Incurables—fifteen out of the twenty-six in this city. The city's hospitals, for obvious reasons, are not in this arrangement, and the Roman Catholic hospitals are outside of it also. Then there are some institutions endowed by private munificence that perhaps do not require the help proposed by this hospital committee. But doubtless in time the other hospitals and infirmaries of the city will enter into the combination and share the benefits of systematic and organized benevolence. The leading ministers of the different Protestant denominations have heartily indorsed the movement and will prepare special sermons thereon for next Sunday or the Sunday following, when the collections will be taken. Dr. Armitage, of the Baptist Church, writes that the movement commends itself to his head and heart as one of the unmixed opportunities of life for doing good, and adds that he will, by sermon and otherwise, encourage his people to contribute. Dr. M. S. Terry, presiding elder of the Methodist Episcopal Church in this district of the New York Conference, thinks the movement ought to receive a cordial response and hearty co-operation among all religious societies and Christian people, as it does from himself; and Dr. Henry P. Mendes, rabbi of the Forty-fourth Street Synagogue, says a similar movement was very successful in Manchester, England, where he ministered before he came to New York, and that he has urged it here, is heartily in favor of it, and will appeal to his congregation in its behalf. Dr. Chambers, of the Reformed Church, thinks this form of charity is so pure and unselfish in itself that it ought to be brought before the entire population of the city, and he knows of no better method to do this than the one proposed; and Dr. Krotel, of the Lutheran Church, does not believe that the community could be engaged in a better work. Dr. Tiffany, of St. Paul's Methodist Episcopal Church, gives the same hearty approval, and Dr. Morgan, of St. Thomas' Episcopal Church, thinks nothing could be more comprehensive than the present scheme, because none are excluded, and nothing could be more liberal or wise in its methods of distribution than the plan proposed.

METHOD OF DISTRIBUTION.

A Distributing Committee of Seven, consisting of the Mayor, the Postmaster, the President of the Chamber of Commerce and Messrs. George H. Andrews, John W. Harper, Jesse Seligman and William E. Dodge, Jr., will receive and distribute all undesignated contributions, not, however, including such undesignated contributions in church collections as the rector or pastor of the contributing church may send to such institutions as the collections may have been especially announced to benefit.

The plan of distribution of undesignated funds by the Distributing Committee will be to divide them among the institutions mentioned as uniting in the benefits of this collection according to the number of hospital days free patients have been treated in the beds of such institution for the year preceding. But when the income of any institution shall have been greater than its expenditure for current expenses, as shown by its last annual report, it will be within the discretion of the Distributing Committee to decide whether such institution shall share in the division of such undesignated contributions. The Distributing Committee may also consider the amount received by any institution through designated gifts in the collections made on the appointed hospital days in making their divisions of undesignated contributions.

Mr. Charles Lanier of the firm of Winslow, Lanier & Co., has been chosen general treasurer of the fund, and the following gentlemen have consented to act as the treasurers of their respective business exchanges, to whom contributions may be sent on Saturday, 27th inst.:—Samuel D. Babcock, No. 50 Wall street, Chamber of Commerce; William Alexander Smith, No. 40 Wall street, Stock Exchange; John H. Earle, No. 136 Pearl street, Cotton Exchange; Edward Hincken, No 3 William street, Produce Exchange; Charles F. Elwell, No. 57 South street, Maritime Exchange; S. F. Strong, No. 131 Pearl street, Petroleum Exchange; Henry A. Oakley, No. 66 Wall street, Underwriters (life, fire and marine), and Charles M. Fry, Bank of New York, for the banks.

THE INTEROCEANIC CANAL.

TO THE EDITOR OF THE HERALD:—

I avail myself, with your permission, of your impartial columns to make some remarks, which I consider opportune, upon the great subject of a ship canal through Central America, and I address myself to the HERALD just because I know that it is not biassed with any preconceived notion nor "got up" in the interest of any particular scheme. But this very conviction of mine has made me read with regret your leading article in the issue of the 10th inst. and entitled, "Light on the Interoceanic Canal," which alludes to Admiral Ammen's paper read before the American Geographical Society on the evening of the 9th inst.

In the first place, I fail to perceive any new light on the subject, since the Admiral only repeats there what he had previously said, excepting, perhaps, that he points a little more distinctly to the speculative character of the Wyse-Lesseps grant from the Colombian government. Now, whatever the real motives may have been for the Wyse party to apply for the grant, it makes no difference so long as the work is feasible and it proves to be the best and cheapest, and for those who prefer to imagine the enterprise conducted in a scientific or chivalrous spirit, why, the guidance of M. de Lesseps, who has purchased the original grant, is as good a guarantee as that of any other man.

The portion of your article which has most painfully impressed me is the following passage:—"The point which will strike the public in this connection most forcibly, and perhaps with some surprise, is Admiral Ammen's advice that 'the government of the United States should consider the question of the interoceanic ship canal as still undetermined,' notwithstanding the unanimous recommendation of the Nicaragua route by the commissioners appointed by President Grant in 1872, who filed their report in 1876, and should convoke an international Congress here to which 'all the governments that were represented at Paris should send their engineers,' to unite with an official commission 'of the oldest engineers of our army and the ablest civil engineers of our country' in a final solution of the problem." I humbly differ from the interpretation you put upon Admiral Ammen's proposal. To my mind it shows that the Admiral's honesty and conscience do not now allow him to be positive as to the excellence of the Nicaragua route as compared with others. M. Menocal, the Admiral's companion in that scheme, seems to share the latter's doubts or his desire of making evident to everybody what is, perhaps, evident only to a prejudiced few.

A paper from the pen of Mr. G. Menocal on "Interoceanic Canals" was read on the 19th of November last in New York, at a meeting of the American Society of Civil Engineers, in which the Nicaragua route was advocated, and, nevertheless, the report of which significantly ends in this wise:—"It was stated that M. Menocal deemed an additional paper necessary in order that he might the better unfold the whole scope of the project before the society; also that he proposes soon to return to Nicaragua, where he intends to make still further investigations concerning the proposed canal."

An eminent American engineer, General N. W. Wright, who has thoroughly studied the subject, in a letter from Philadelphia dated June 16, and published by the HERALD on the 22d of October ult., while giving the preference to the Panama route upon the data hitherto known, remarks:—"All surveys and explorations heretofore made have been done in a hasty and superficial manner, and, admitting the entire capability of those engaged in them, it was an impossibility in the time and with the means at their command to collect sufficient and reliable data for an accurate estimate."

One of your contemporaries, in a leader of October 30, wrote thus:—"The interesting report made by Admiral Ammen to the government about the proceedings of the Paris Congress on the interoceanic canal, to which he was a delegate, was accompanied with the suggestion that there should be a new Congress, to be held in America, to review this question of route for the canal. The suggestion has been espoused heartily in this country, and it may be considered the position of the American engineers."

Besides the name of General Wright I might bring forth here some others of no less respectability, as are those of Colonel Totten and Commodore Selfridge, who side with the Panama route in preference to that of Nicaragua, if I intended to draw a comparison between the two routes. But I only refer to them in order to show that the preference for the latter is far from being "substantially unanimous," and that new surveys are indispensable before embarking a huge capital in an undertaking, the result of which for the subscribers is more or less doubtful. Nor do I agree with Admiral Ammen when he says that "hereafter in the examination of the question only the Nicaragua and Panama routes need critical examination," thus dismissing all the other routes suggested before the Paris Congress met. It seems to me that one route has not attracted all the attention it deserves, and that is the San Blas-Chepo route, some twenty miles to the east of Panama. An American gentleman, Mr. Frederick M. Kelly, who has spent no little time and money in examining that tract of land, in a letter to the *Economist*, published in Boston, on November 8 last, writes as follows:—"The San Blas route being much the shortest of any proposed, and having good natural harbors at both ends, easily approached on a wide, open sea, it is of the highest importance, before deciding so great a problem as the best and only route for an interoceanic canal, that it should be thoroughly examined from ocean to ocean, as it is quite probable a lower and shorter pass may be found by flanking the sugar-loaf-shaped hills which traverse the Isthmus in that locality. Indeed, it would be remarkable if any engineers, in their first survey, had found the best route without running traverse lines, which every engineer knows the importance of in getting the lowest levels." It all shows how timely Mr. King, of Louisiana, offered yesterday in the House of Representatives a resolution for the appointment of a select committee of eleven, whose duty it shall be to examine into the subject of the selection of a suitable route for an interoceanic ship canal, to which all petitions, memorials and reports relative to such canal shall be referred, and which shall have authority to report at any time.

It is my firm conviction that for the American people it is quite indifferent where a canal be opened, provided that it best answers the commercial and political views of the United States, and that many, if not all, of those who advocate the Nicaragua route do it in the belief that no other would offer the same facility for the desired control of the whole business. But I am confident that all the substantial advantages sought for in the Nicaragua route might be secured in any other, the Panama one not excepted, and I think I could prove it were I not afraid of encroaching too much upon your valuable space. I am, sir, your obedient servant,
JUSTICE.

WASHINGTON, Dec. 17, 1879.

THE HERCULES.

The papers of the steam pilot boat Hercules were only made out yesterday at the Custom House. Some time ago Mr. Thomas S. Sandford made application for the Hercules papers, but refused to give the name of the owner of the vessel, admitting that he was simply the trustee. As the Hercules came from Philadelphia and had changed hands, it was necessary that the bill of sale should be filed and the name of the new owner given in the application for new papers, so Mr. Sandford's request was not complied with. On Wednesday Mr. Sandford filed the bill of sale of the Hercules to himself at the Custom House, and made out his application for her papers in his own name as owner, and it was granted.

ALDERMAN HALL'S SALARY.

The Comptroller sent a long letter to Corporation Counsel Whitney, yesterday, in which he discusses the legal position recently taken by the latter as to the payment of the salary of Alderman Hall and states that unless advised that the receipt of the Alderman will not be a sufficient discharge of the obligation of the city he shall pay the amount due.